

**TITLE: A TECHNIQUE FOR IMPROVING MODULATION PERFORMANCE  
OF TRANSLATIONAL LOOP RF TRANSMITTERS**

**ABSTRACT OF THE INVENTION**

5

A transmit signal generated by the baseband processor in a translational loop type RF transmitter is “pre-distorted” so as to counter act magnitude distortion and group delay variation imposed by a narrow PLL signal filter. The pre-distortion occurs in two steps: a magnitude equalizer in the baseband processor pre-distorts the amplitude of the transmit signal according to the inverse of the PLL signal filter magnitude response, and a group delay equalizer linearizes the phase response of the entire transmitter chain, i.e., pre-distorts the transmit signal such that the combined phase response of magnitude equalizer, group delay equalizer, and PLL signal filter is linear. With such pre-distortion, a loop filter is provided for with component values that define a relatively small bandwidth for the loop filter to filter spurious tones that result from an IF reference feedthrough to a voltage controlled oscillator of the translational loop.

15